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Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by Agricultural Explorers and Foreign Correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual catalogue entitled NEW PLANT INTRODUCTIONS which will be sent you in the autumn and in which will be listed all plants available at that time. Regular requests checked off on the check list sent out with the catalogue are not kept over from year to year. If you are especially interested in some particular plant in the catalogue write and explain in detail your fitness to handle it.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

David Fairchild,

Agricultural Explorer in Charge.

October 25, 1917.

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Aeschynomene sp. (Fabaceae.) 44113. Seeds from El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. "*Yellow sensitiva.* An annual, papilionaceous, dense-growing, nearly trailing plant, finely and densely ramified, resembling the sensitive *Mimosa;* our best plant for enriching the soil. Said to be a good forage plant." (Wercklé.)

Amaranthus paniculatus L. (Amaranthaceae.) 44176. Seeds of an **amaranth** from India. Presented by Mr. A. C. Hartless, Superintendent, Government Botanical Gardens, Saharanpur, who secured them from the Director of Agriculture, Kashmir. A tall, handsome plant 4 to 6 feet high, cultivated in eastern and western Asia and Africa. The lance-elliptic leaves are 2 to 6 inches long, and the numerous flowers are borne in dense red or gold-colored spikes. The subglobose seeds are white, red or black, and because of their farinaceous nature form the staple food of the poorer classes of the hill tribes in many parts of India, where the plant is known as *Rajgira.* (Adapted from T. Cooke, Flora of the Presidency of Bombay, vol. 2, p. 489.)

Amygdalus nana x persica (Amygdalaceae.) 44177. Bud wood of a **hybrid peach** from Excelsior, Minn. Presented by Mr. Charles Haralson, Superintendent, Fruit Breeding Farm. "A hybrid between *Amygdalus nana* and the Bokhara No. 3 peach. This hybrid grows to about eight feet on *Prunus americana* stock, is perfectly hardy and is the best bloomer in the spring of all stone fruits. The tree produces an abundance of pink blossoms, larger than those of *Amygdalus nana*, but it has never borne any fruit. The foliage is glossy dark green and stays on until the frost gets it in the fall." (Haralson.)

Calamus sp. (Phoenicaceae.) 44181. Seeds of **rattan** from the Philippine Islands. Presented by Mr. P. J. Wester, Horticulturist, Lamao Experiment Station, Lamao, Bataan, Philipine Islands. A climbing, spiny rattan, found at medium elevations in northern Luzon and Nueva Vizcaya, Philippine Islands. It attains a height of more than 10 meters with a rather coarse stem, and large branched racemes of round, scaly fruits, which ripen in the last months of the year, becoming 30 mm. in diameter. It is said to have a semitransparent, juicy, subacid pulp of good flavor,

which separates readily from the flesh, and is good eaten as a dessert fruit. (Adapted from P. J. Wester, Philippine Agricultural Review, Third Quarter, 1916, p. 233.)

Canarium amboinense Hochr. (Balsameacece.) Seeds from Buitenzorg, Java. Presented by Dr. Koningsberger, the Director of the Botanic Garden. This beautiful tree, which grows to a height of about 90 feet, so resembles *Canarium moluccana* in general habit and in the leaves that the two can scarcely be distinguished, although the fruit is different. The bark is smooth and white. The fruit of this species is oblong, pointed at both ends, with the angles sharp toward the ends and somewhat flattened toward the middle. This tree is found in the island of Amboina, Celebes. (Adapted from Hochreutiner, Plantae Bogoriensis Exsiccatae, p. 55.)

Canarium ovatum Engler. (Balsameaceae.) 44101. Seeds of the **pili nut** from Camarines, P. I. Presented by Dr. E. B. Copeland, Dean, College of Agriculture, Los Banos, P. I. A tree, native of the Philippines, with compound leaves, and triangular drupes containing one seed. These seeds are eaten throughout the eastern part of the world, and from them is extracted an oil which is used for table purposes and also for burning in lamps. (Adapted from notes of H. H. Boyle, Assistant Horticulturist, Manila, Philippine Islands.)

Cassia bicapsularis L. (Caesalpiniaceae.) 44123. Seeds from Cairo, Egypt. Presented by the Director, Horticultural Division, Ministry of Agriculture, Giza Branch. A shrub, found throughout tropical and subtropical Asia, 2 to 3.5 meters (6 to 10 feet) high, with compound leaves up to 9 cm. (3½ inches) long, yellow flowers, and curved or straight pods up to 15 cm. (6 inches) long by 1.5 cm. (3/5 inch) wide. In Porto Rico, this shrub is known by the native names *sen del pais* and *hoja de sen.* (Adapted from J. Perkins, in Contributions from the National Herbarium, vol. 10, p. 158.)

Castanea mollissima Blume. (Fagaceae.) 44197-98. Seeds of a **chestnut** from China. Collected by Mr. Frank N. Meyer, Agricultural Explorer for this Department. This Chinese chestnut has shown itself so resistant to the chestnut blight disease that Mr. Meyer has secured additional quantities from the Pangshan district, northeast of Peking.

Citrus limetta aromatica Wester. (Rutaceae.) 44136. Seeds of **dalayap** from the Philippine Islands. Presented by Mr. P. J. Wester, Bureau of Agriculture, Manila. A spiny Philippine shrub collected at Palawan, with slender, willowy branches; dull green, ovate or elliptic, serrate leaves to 10 cm. (4 inches) long; purplish white flowers borne singly or in terminal or axillary cymes. The roundish, smooth, lemon yellow fruits are 5 cm. (2 inches) long, with thin skin; pale green, juicy, sharply acid pulp; and very numerous, small seeds. (Adapted from P. J. Wester, Philippine Agricultural Review, First Quarter, 1915, p. 25.)

Citrus medica nana Wester. (Rutaceae.) 44137. Seeds of **dwarf citron** from the Philippine Islands. Presented by Mr. P. J. Wester, Bureau of Agriculture, Manila. A small thorny shrub, collected at Cebu; rather common in the Philippines. It bears loose cymes of purplish white flowers, and roundish, egg-shaped, smooth, yellow fruits, 2½ inches or more long. (Adapted from P. J. Wester, Philippine Agricultural Review, First Quarter, 1915, p. 23.)

Davidia involucrata vilmoriniana (Dode) Hemsley. (Cornaceae.) 44127. Seeds from Paris, France. Presented by Vilmorin-Andrieux Co. A tree, 40 to 50 feet high, from western China; with alternate, bright green, ovate, coarsely serrate leaves, 2 to 4½ inches long; inconspicuous flowers in terminal, globular heads, about an inch in diameter; enormous white bracts surrounding the flowers; and ovoid, greenish yellow fruits with brown dots, about 1¾ inches long. In the British Isles this tree is quite hardy, and though it can be propagated by cuttings, the plants raised from seeds show the greatest vigor. (Adapted from Curtis's Botanical Magazine, vol. 138, plate 8432.)

Diospyros ebenaster Retzius. (Diospyraceae.) 44130. Seeds of **black sapote** from Honolulu, Hawaii. Presented by Mr. Gerrit P. Wilder. An ornamental Mexican tree with oblong-oval glossy leaves, about 4 inches long; and light green oblate fruits, up to 4 inches in diameter, with very dark brown sweetish pulp. (Adapted from note of Wilson Popenoe.)

Diospyros kaki L.f. (Diospyraceae.) 44108. Cuttings of **persimmon** from Kioshan, Honan, China. Presented by Dr. Nathannel Fedde, American Luthern Mission. "The

Honan red persimmon is about the size of the average tomato, and were it not for the large stiff calyx would be almost indistinguishable from it. Commonly no seeds occur, but some have as many as four or five. The taste is sweet almost to a fault, with no suggestion of pucker unless the core is eaten. The juice leaves a permanent stain in linen." (Fedde.)

Fagopyrum vulgare Hill. (Polygonaceae.) 44208. **Buckwheat** seeds from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer, November 25, 1916. "*Ch'iao mai,* meaning 'Triangular wheat'. Chinese buckwheat grown as late crop on poor lands and on mountain slopes. From the flour a very thin and brittle vermicelli is manufactured, from which a meal can be prepared within a few minutes." (Meyer.)

Ficus sp. (Moraceae.) 44116. Seeds from El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. "This is very different from the rest of the genus in its being of superb form. It is a very large and very dense tree, of exceptionally beautiful color, and is evergreen. Nearly all the other species are bare for a longer or shorter time during the dry Season. Very much liked by birds, and always full of little parrots. Fruit and leaves very small. One of the most beautiful tropical trees. Plant in fibrous fern peat, or, in turf, with a little old mortar (ground) and a little charcoal dust; or, in common vegetable peat, with ground mortar (sand and lime) and charcoal dust." (Wercklé.)

Juglans mandschurica Maxim. (Juglandaceae.) 44233. Seeds of **Manchurian walnut** from Shinglungshan, Chihli province, China. Collected by Mr. Frank N. Meyer, December 3. 1916. "*Shan ho t'ao,* meaning 'Mountain or wild walnut,' occurring in Manchuria and Northern China, growing into a stately tree. The nuts are small and contain but little meat, but they are eagerly eaten by the people. The young foliage is very sensitive to frosts, and the tree can be grown successfully only in such localities where late frosts are of rare occurrence. Of value as a hardy shade tree; possibly also as a stock for Persian walnuts, in cold localities." (Meyer.)

Juglans regia L. (Juglandaceae.) 44199-44200. **Walnut** seeds from Peking, China. Collected by Mr. Frank N. Meyer, November 10, 1916. "Walnuts of large size,

said to come from the mountains west of Peking. Chinese walnuts seem especially adapted to semiarid regions with warm summers and dry cold winters." (Meyer.)

Juniperus chinensis L. (Pinaceae.) 44234. **Juniper** seeds from Peking, China. Collected by Mr. Frank N. Meyer, December 27, 1916. "*Pai shu.* Berries of the North Chinese juniper, a hardy, drought and alkali-resistant evergreen tree, living to be many centuries old. Especially suited for dry climates with winters not too severe." (Meyer.)

Phaseolus angularis (Willd.) W. F. Wight. (Fabaceae.) 44232. **Adzuki beans** from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer, November 25, 1916. *Hei hsiao tou* meaning 'Black small bean'. An adzuki bean of marbled, blackish color, used mostly to produce first quality beansprouts." (Meyer.) These beansprouts can be produced by putting the beans in an earthern crock well drained by means of holes in its bottom and keeping them moist until they sprout and produce roots 1½ inches long. These sprouted adzuki beans when blanched by immersion for a few minutes in boiling water and cooling in cold water make a delicious vegetable when fried in butter until they begin to brown. (Fairchild.)

Perilla frutescens (L.) Britton. (Menthaceae.) 44205. Seeds from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer, November 25, 1916. "*Su tzu.* An odoriferous annual, the seeds of which contain a great percentage of oil which is used in waterproofing paper and cloth. They are also fed to song birds in winter time. The young tops are employed in giving flavor to certain pickles." (Meyer.)

Picea meyeri Rehder & Wilson. (Pinaceae.) 44149. **Spruce** seeds from Shinglungshan, Chihli province, China. Collected by Mr. Frank N. Meyer, December 3, 1916. "A tall-growing spruce, often having bluish needles." (Meyer.)

Pisum sativum L. (Fabaceae.) 44231. Seeds of **peas** from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer, November 25, 1916. "*Wan tou,* meaning 'Ten thousand bean'. A small, white, garden pea, cultivated for human consumption. In winter these peas are often forced in hot, dark, moist rooms, and the sprouts eaten scalded." (Meyer.)

Psychotria bacteriophila Valeton. (Rubiaceae.) 44119. One root from Buitenzorg, Java. Presented by Mr. P. J. S. Cramer, Chief, Plant Breeding Station. A shrub, 2 to 3 meters (7 to 10 feet) high, native of the Comoro Islands, Madagascar. The elliptic or ovate-oblong, fleshy, dark green leaves are short-petioled, and usually thickly covered with the remarkable bacterial knots which, according to the researches of Zimmerman and Faber (See Plant Immigrants No. 121 p. 1003, S. P. I. 42767, for fuller description) play a similar role in the existence of the plant to that played by the root tubercles of the Leguminosae. These bacterial leaf knots gather nitrogen from the air.

Pyrus lindleyi Rehder. (Malaceae.) 44164-44168-44170-44174. Seeds and cuttings of **Chinese pears** from China. Collected by Mr. Frank N. Meyer. Among these are some of the best cultivated pears of northern China; most of them excellent keepers and all of value in breeding experiments.

Pyrus ussuriensis Maxim. (Malaceae.) 44151-44163. **Pear** seeds from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer. *Suan li,* meaning 'Sour pear'. A medium-sized Chinese pear, of globose form and of green color. Calyx persistent, length of peduncles varies considerably in different specimens. Flesh somewhat gritty and quite sour. These pears cannot be eaten raw, except after having been frozen, when they become melting. By cooking them, however, a sour sauce can be obtained which missionaries found acceptable as a substitute for sour apple sauce. Possibly these may also prove to be blight-resistant." (Meyer.)

Rhynchosia sp. (Fabaceae.) 44118. Seeds from El Coyolar, Costa Rica. Presented by Mr. Carlos Wercklé. "*Yellow vetch.* Small blooming annual forage plant, growing now in the dry season, while the yellow sensitiva (*Aeschynomene sp.*) (No. 44113) is completely dried up. After the yellow sensitiva, it is our best soil enricher." (Wercklé.)

Saccharum officinarum L. (Poaceae.) 44099. **Sugarcane** seeds from Cienfuegos, Cuba. Presented by Mr. Robert M. Grey, Harvard Experiment Station. "Seeds of one of my hybrid canes which is very prolific and germinates freely when sown in the open ground here." (Grey.)

Soja max (L.) Piper. (Fabaceae.) 44212. **Soybeans** from Malanyü, Chihli province, China. *Ch'ing tou,* meaning 'Green bean'. A green variety of soybean, often used as an appetizer with meals, when slightly sprouted and salted, or when fried and salted." (Meyer.)

Vigna sinensis (Torner) Savi. (Fabaceae.) 44218. **Cowpeas** from China. Collected by Mr. Frank N. Meyer. "*No ling tan chiang tou,* meaning 'Wren's egg precious bean'. A speckled variety of cowpea with white top. Cowpeas are in great favor with the Chinese as a human food; they are eaten boiled with rice, stewed in meat-dishes and cooked in soups; they are believed to promote speedy excretion of waste matter from the body." (Meyer.)

Zea mays L. (Poaceae.) 44204. Seed **corn** from Malanyü, Chihli province, China. Collected by Mr. Frank N. Meyer, November 25. 1916. "*Yu mi,* meaning 'Imperial rice'. A large-grained, yellow flint maize, cultivated on rich bottom-lands in the mountains." (Meyer.)

NOTES ON BEHAVIOUR OF PREVIOUS INTRODUCTIONS.

Abelmoschus esculentus (33749) Okra. An Egyptian Variety presented by Mr. E. A. McIlhenny. Mrs. Anna Breckwold of Hammond, Louisiana, in her letter of November 20, 1916, says: "No. 33749, okra, is the most prolific strain I ever saw. It is certainly doing well. I saved a great deal of seed as every one who saw it wanted some." Mrs. J. W. Clark of Georgetown, Texas, also says that the okra proved "all that the description claimed for it. My plants were full of pods when cut down by the freeze last week."

Abelmoschus manihot (18580) This plant (from Peking, China) is reported to have "flowered continuously with the seed pods cut off; blooms enormous, open blossoms were frozen on it." (Mrs. J. W. Clark, Georgetown, Texas.)

Aleurites fordii (27518) Tung-oil tree from China. A letter from Mr. F. D. Leaming, Little Rock, Arkansas November 14, 1916 states that his tung-oil tree received in 1912 bore this year nearly a bushel of fruits which made nearly a peck of nuts after the flesh was removed.

Aralia cordata (26565) Japanese Udo. Mrs. James Chamberlin of Spring Camp, Idaho, reports that "the udo planted has proven a valuable early vegetable. As rapidly as possible we will distribute roots of this plant to families who desire them."

Brassica pekinensis (36054) Mr. James Chamberlin, of Spring Camp, Idaho, reports that "the Chinese cabbage was a great success. As an early vegetable for greens we have nothing to equal it. Some planted in July weighed 28 to 30 lbs. per head or bunch. For this climate, and for the later winter keeping plants, the seed should be sown later than in July. We found it unnecessary to manure it when planted in an ordinary garden soil. We have distributed seed of the Chinese cabbage to many families, so that next season it will be a staple food in this locality." A letter from Mr. C. G. Warriner, Arlington, New Jersey, November 24, 1916, says "the leaves of *Brassica pekinensis* make the most tender and tasty salad we have ever had. I would call it a great addition to a late garden for that purpose irrespective of any other use and would like to grow a large amount of it next year."

Diospyros kaki (26773) Japanese Persimmon. Mr. H. H. Hume in letter of November 13, 1916, says: "I am very glad that No. 26773 pleased you. We think it is just a little the best thing we have found in persimmons yet. If we do not get another thing of value out of our persimmon work other than this we feel that we will be amply repaid. I suppose the name should really be reduced to Fuyu, yet I have a variety under that name which is not the same as Fuyugaki. If I remember correctly, we have 7 or 8 trees of this variety; one is a top-worked tree, the others root grafted. The variety attracted our attention last year and we immediately started in to propagate it with such propagating wood as we could secure from one individual tree. I think we have about 70 or 80 trees in the nurseries now and have about 500 dormant buds, inserted last August. It will probably take us another year before we can work up a stock of it of any considerable size."

Maytenus boaria (26323). A small leaved variety of the Chilean maiten, a tree on which horses and cattle browse in season of drought, and which is considered of value for its forage. "I received this from your

Department last spring. It looks a little like the live oak. You said that it made a good hedge or a large shade tree. I smiled at such a combination of qualities, but it is true. The plants all lived. I cut to 6 inches and now they are 5½ or 6 feet high - perfect evergreen, though we have had sudden drops to 14° F. I wish I had 10,000 of them." F. T. Ramsey, Austin, Texas. Feb. 8, 1917. Regarding this same Chilean tree Mr. A. P. Borden, of Pierce, Texas, wrote on July 23, 1917. "About twelve or thirteen years ago Dr. Galloway sent me from Washington, quite a number of shade and ornamental trees to try in this section. About the only one that survived and did well is an evergreen tree with a bushy top about twenty feet high, making a very dense shade. It is a pretty tree."

Mr. R. C. May of Miami, Florida, in letter of April 5, 1917, reports: "To my surprise the candle-nut (*Aleurites moluccana*), S. P. I. No. 40977, *Duranta repens*, S. P. I. No. 39458, and the *Myrciaria cauliflora* (Jaboticaba), S. P. I. No. 36702, are living and growing well. The candle-nut is quite hardy and as cold-resistant as the sweet orange. The Jaboticaba is about as cold-resistant as the lemon and the *Duranta repens* as the lime. I make these comparisons supposing you to be familiar with them. The temperature here was about 24° F."

Medicago orbicularis (10725). Button clover. "This leguminous crop which is proving valuable in California, is the subject of Farmers' Bulletin No. 730. The original seed was collected by Mr. T. H. Kearney of the Bureau of Plant Industry, from pods which he found on the stone pavement of the Temple of Aesculapius, at Lambesa near Timgad, Algeria. This handful of pods from a dry plant on the old temple floor has resulted since 1902 in the introduction of a crop which is preferable as a pasture plant to the spotted and toothed bur clovers, now used extensively, while it has practically the same value as these other bur clovers for green-manuring purposes." (Fairchild.)

Prunus tomentosa (36111). A Chinese bush cherry. These young cuttings of this number planted in 1914 have proved very hardy at Spring Camp, Idaho, and are said to have made a wonderful growth. The plant blossomed this spring but the fruit was killed by an unusually late spring frost.

United States Department of Agriculture.
Bureau of Plant Industry.
Office of Foreign Seed and Plant Introduction.
Washington, D. C.

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